WHAT IS CLAIMED IS:

1. An optical fiber amplifier comprising:

two laser sources emitting pump light beams of wavelengths different from each other; and

a tellurite fiber pumped with the pump light emitted from said two laser sources;

wherein the absolute difference in wavenumber between said pump light beams emitted from the two laser sources is 125-290cm^{-1}.

2. The optical fiber amplifier as claimed in claim 1, further comprising a coupler that combines the pump light beams emitted from said two laser sources.

3. An optical fiber amplifier comprising:

three or more laser sources emitting pump light beams of wavelengths different from one another; and

a tellurite fiber pumped with the pump light emitted from said three or more laser sources;

wherein said three or more laser sources are divided into two groups not overlapping each other in wavelength and the absolute difference in wavenumber between the corresponding weight center wavelengths of said two groups is 125-290cm^{-1}.

4. The optical fiber amplifier as claimed in claim 2, further comprising a coupler that combines the pump light

beams emitted from said three or more laser sources.

5. The optical fiber amplifier as claimed in claim 1 or 3, wherein said tellurite fiber is a dispersion compensating fiber.

6. The optical fiber amplifier as claimed in claim 1 or 3, further comprising a gain equalizer installed in the downstream stage of said tellurite fiber in the incidnet direction of signal light.

7. An optical fiber amplifier comprising:

two laser sources emitting pump light beams of wavelengths different from each other; and

first and second tellurite fibers pumped with the pump light emitted from said two laser sources;

wherein the absolute difference in wavenumber between said pump light beams emitted from the two laser sources is 125-290cm^{-1}.

8. The optical fiber amplifier as claimed in claim 7, wherein said first and second tellurite fibers are connected in series.

9. The optical fiber amplifier as claimed in claim 8, further comprising a gain equalizer installed between said first tellurite fiber and second tellurite fiber.

10. The optical fiber amplifier as claimed in claim 7 or 8, further comprising:

a coupler that combines the pump light beams emitted from said two laser sources; and

a splitter that splits the output light from said coupler into input light branches to be provided for said first and second tellurite fibers.

11. An optical fiber amplifier comprising:

three or more laser sources emitting pump light beams of wavelengths different from one another; and

two tellurite fibers pumped with the pump light emitted from said three or more laser sources;

wherein said three or more laser sources are divided into two groups not overlapping each other in wavelength and the absolute difference in wavenumber between the corresponding weight center wavelengths of said two groups is 125-290cm^{-1}.

12. The optical fiber amplifier as claimed in claim 7 or 11, wherein said first or second tellurite fiber is a dispersion compensating fiber.

13. An optical fiber amplifier comprising:

first and second laser sources emitting pump light beams of wavelengths different from each other;

a tellurite fiber pumped with the pump light emitted from said first laser source; and

a silica fiber pumped with the pump light emitted from said second laser source.

14. The optical fiber amplifier as claimed in claim 13, wherein the difference in wavenumber between the pump light emitted from said second laser source and that emitted from said first laser source is 42-166cm^{-1}.

15. The optical fiber amplifier as claimed in claim 13 or 14, wherein said tellurite fiber and said silica fiber are connected in series.

16. The optical fiber amplifier as claimed in claim 15, wherein said tellurite fiber is installed upstream in the incident direction of signal light.

17. The optical fiber amplifier as claimed in claim 15, further comprising:

a first coupler for injecting the pump light emitted from said first laser source into said tellurite fiber; and

a second coupler for injecting the pump light emitted from said second laser source into said silica fiber.

18. The optical fiber amplifier as claimed in claim 13 or 14, wherein said tellurite fiber is a dispersion compensating fiber.

19. The optical fiber amplifier as claimed in claim 13 or 14, wherein said silica fiber is a dispersion compensating fiber.

20. The optical fiber amplifier as claimed in claim 13 or 14, further comprising a coupler that combines the pump light emitted from said first laser source and that from said second laser source.

21. The optical fiber amplifier as claimed in claim 20, wherein said tellurite fiber and said silica fiber are connected in series.

22. The optical fiber amplifier as claimed in claim 21, wherein said tellurite fiber is installed upstream in the incident direction of signal light.

23. The optical fiber amplifier as claimed in claim 20, wherein said tellurite fiber is a dispersion compensating fiber.

24. The optical fiber amplifier as claimed in claim 20, wherein said silica fiber is a dispersion compensating fiber.

25. The optical fiber amplifier as claimed in claim 20; wherein said tellurite fiber and said silica fiber are connected in series, said tellurite fiber is installed

upstream in the incidnet direction of signal light, and a reflector that reflects the pump light emitted from said first laser source is installed between said tellurite fiber and silica fiber.

26. The optical fiber amplifier as claimed in claim 20; wherein said tellurite fiber and said silica fiber are connected in series, said tellurite fiber is installed upstream in the incident direction of signal light, and a reflector that reflects the pump light emitted from said second laser source is installed between said tellurite fiber and silica fiber.

27. The optical fiber amplifier as claimed in claim 25, wherein said tellurite fiber is a dispersion compensating fiber.

28. The optical fiber amplifier as claimed in claim 25, wherein said silica fiber is a dispersion compensating fiber.

29. The optical fiber amplifier as claimed in claim 26, wherein said tellurite fiber is a dispersion compensating fiber.

30. The optical fiber amplifier as claimed in claim 26, wherein said silica fiber is a dispersion compensating fiber.

31. An optical fiber amplifier comprising:

a plurality of tellurite fibers;

a plurality of silica fibers; and

two laser sources emitting pump light beams of wavelengths different from each other;

wherein said tellurite fibers and said silica fibers are connected in series adjacent to each other.

32. The optical fiber amplifier as claimed in claim 31, wherein the difference in wavenumber between the two pump light beams emitted from said two laser sources is 42-166cm^{-1}.

33. The optical fiber amplifier as claimed in claim 31, further comprising a coupler that combines the pump light beams emitted from said two laser sources and signal light.

34. The optical fiber amplifier as claimed in claim 31, wherein said tellurite fiber is installed in the most upstream stage of the incidnent direction of signal light.

35. The optical fiber amplifier as claimed in claim 31, wherein the number of said tellurite fibers is two and that of said silica fibers is two.

36. The optical fiber amplifier as claimed in claim 31, wherein said plurality of tellurite fibers are dispersion

compensating fibers.

37. The optical fiber amplifier as claimed in claim 31, wherein said plurality of silica fibers are dispersion compensating fibers.

38. An optical fiber amplifier comprising:

first, second and third laser sources emitting pump light beams of wavelengths different from one another;

a tellurite fiber pumped with said first laser source; and

a silica fiber pumped with said second and third laser sources.

39. The optical fiber amplifier as claimed in claim 38;

wherein the difference in wavenumber between the pump light emitted from said second laser source and that emitted from said first laser source is 42-166cm^{-1}, and

the difference in wavenumber between the pump light emitted from said first laser source and that emitted from said third laser source is 42-294cm^{-1}.

40. The optical fiber amplifier as claimed in claim 38 or 39, wherein said tellurite fiber and said silica fiber are connected in series.

41. The optical fiber amplifier as claimed in claim 40, wherein said tellurite fiber is installed upstream in the

incidnet direction of signal light.

42. The optical fiber amplifier as claimed in claim 38 or 39, further comprising a coupler that combines the pump light emitted from said second laser source and that from said third laser source.

43. The optical fiber amplifier as claimed in claim 38 or 39, wherein said tellurite fiber is a dispersion compensating fiber.

44. The optical fiber amplifier as claimed in claim 38 or 39, wherein said silica fiber is a dispersion compensating fiber.

45. An optical fiber amplifier comprising:

first, second and third laser sources emitting pump light beams of wavelengths different from one another;

a tellurite fiber pumped with said first and second laser sources; and

a silica fiber pumped with said third laser source.

46. The optical fiber amplifier as claimed in claim 45;

wherein the difference in wavenumber between the pump light emitted from said third laser source and that emitted from said first laser source is 42-166cm^{-1}, and

the difference in wavenumber between the pump light emitted from said first laser source and that emitted from

said second laser source is 125-290cm^{-1}.

47. The optical fiber amplifier as claimed in claim 45 or 46, wherein said tellurite fiber and said silica fiber are connected in series.

48. The optical fiber amplifier as claimed in claim 47, wherein said tellurite fiber is installed upstream in the incident direction of signal light.

49. The optical fiber amplifier as claimed in claim 45 or 46, further comprising a coupler that combines the pump light emitted from said first laser source and that from said second laser source.

50. The optical fiber amplifier as claimed in claim 45 or 46, wherein said tellurite fiber is a dispersion compensating fiber.

51. The optical fiber amplifier as claimed in claim 45 or 46, wherein said silica fiber is a dispersion compensating fiber.

52. The optical fiber amplifier as claimed in claim 45 or 46, wherein, $\lambda 1$ and $\lambda 2$ being wavelengths($\lambda 1 > \lambda 2$) at the gain peaks provided by the pumping with only the pump light emitted from said first laser source, the ratio between

the on-off Raman gain(in dB values) at $\lambda 1$ of said tellurite fiber and that at $\lambda 2$ lies between 100:80 and 100:100 when the tellurite fiber is pumped with the pump light beams emitted from said first and second laser sources.

53. An optical fiber amplifier comprising:

first, second, third and fourth laser sources emitting pump light beams of wavelengths different from one another;

a tellurite fiber pumped with said first and second laser sources; and

a silica fiber pumped with said third and fourth laser sources.

54. The optical fiber amplifier as claimed in claim 53;

wherein the difference in wavenumber between the pump light emitted from said third laser source and that emitted from said first laser source is 42-166cm^{-1},

the difference in wavenumber between the pump light emitted from said first laser source and that emitted from said second laser source is 125-290cm^{-1}, and

the difference in wavenumber between the pump light emitted from said first laser source and that emitted from said fourth laser source is 42-290cm^{-1}.

55. The optical fiber amplifier as claimed in claim 53 or 54, wherein said tellurite fiber and said silica fiber

are connected in series.

56. The optical fiber amplifier as claimed in claim 55, wherein said tellurite fiber is installed upstream in the incident direction of signal light.

57. The optical fiber amplifier as claimed in claim 53 or 54, further comprising a coupler that combines the pump light emitted from said first laser source and that from said second laser source.

58. The optical fiber amplifier as claimed in claim 53 or 54, further comprising a coupler that combines the pump light emitted from said third laser source and that from said fourth laser source.

59. The optical fiber amplifier as claimed in claim 53 or 54, wherein said tellurite fiber is a dispersion compensating fiber.

60. The optical fiber amplifier as claimed in claim 53 or 54, wherein said silica fiber is a dispersion compensating fiber.

61. The optical fiber amplifier as claimed in claim 53 or 54, wherein, $\lambda 1$ and $\lambda 2$ being wavelengths($\lambda 1>\lambda 2$) at the gain peaks provided by the pumping with only the pump light emitted from said first laser source, the ratio between

the on-off Raman gain(in dB values) at λ1 of said tellurite fiber and that at λ2 lies between 100:80 and 100:100 when the tellurite fiber is pumped with the pump light beams emitted from said first and second laser sources.

62. An optical fiber amplifier comprising:

first, second, third and fourth laser sources emitting pump light beams of wavelengths different from one another;

fifth and sixth laser sources;

a first tellurite fiber pumped with said first and second laser sources;

a second tellurite fiber pumped with said fifth and sixth laser sources; and

a silica fiber pumped with said third and fourth laser sources.

63. The optical fiber amplifier as claimed in claim 62;

wherein the difference in wavenumber between the pump light emitted from said third laser source and that emitted from said first laser source is 42-166cm^{-1},

the difference in wavenumber between the pump light emitted from said first laser source and that emitted from said second laser source is 125-290cm^{-1}, and

the difference in wavenumber between the pump light emitted from said first laser source and that emitted from said fourth laser source is 42-290cm^{-1}.

64. The optical fiber amplifier as claimed in claim 62 or 63, wherein the pump light beams emitted from said fifth and first laser sources have the same wavelength and the pump light beams emitted from said sixth and second laser sources have the same wavelength.

65. The optical fiber amplifier as claimed in claim 62 or 63, wherein said first tellurite fiber, said silica fiber and said second tellurite fiber are connected in series in this order.

66. The optical fiber amplifier as claimed in claim 62 or 63, further comprising a coupler that combines the pump light emitted from said first laser source and that from said second laser source.

67. The optical fiber amplifier as claimed in claim 62 or 63, further comprising a coupler that combines the pump light emitted from said third laser source and that from said fourth laser source.

68. The optical fiber amplifier as claimed in claim 62 or 63, further comprising a coupler that combines the pump light emitted from said fifth laser source and that from said sixth laser source.

69. The optical fiber amplifier as claimed in claim 62

or 63, wherein either of said first or second tellurite fiber is a dispersion compensating fiber or both of said first and second tellurite fibers are dispersion compensating fibers.

70. The optical fiber amplifier as claimed in claim 62 or 63, wherein said silica fiber is a dispersion compensating fiber.

71. An optical fiber amplifier comprising:

first and second laser sources emitting pump light beams of wavelengths different from each other; and

a tellurite fiber; and

an Erbium-doped fiber.

72. The optical fiber amplifier as claimed in claim 71, wherein the wavelength of the pump light emitted from said first laser source is 1410-1440nm and the wavelength of the pump light emitted from said second laser source is 1450-1500nm.

73. The optical fiber amplifier as claimed in claim 71 or 72, wherein said tellurite fiber and said Erbium-doped fiber are connected in series.

74. The optical fiber amplifier as claimed in claim 73, wherein said tellurite fiber is installed upstream in the incidnet direction of signal light.

75. The optical fiber amplifier as claimed in claim 71 or 72, wherein said tellurite fiber is a dispersion compensating fiber.

76. An optical fiber amplifier comprising:

first and second laser sources;

a tellurite fiber pumped with the pump light emitted from said first laser source;

a wavelength-selective splitter that splits the signal light amplified in said tellurite fiber into signal light outputs of first and second wavelength regions;

a Thulium-doped fiber that is pumped with the pump light emitted from said second laser source and amplifys the signal light output of the first wavelength region; and

a coupler that combines the signal light output of the first wavelength region amplified in said Thulium-doped fiber and the signal light output of the second wavelength region.

77. The optical fiber amplifier as claimed in claim 76, wherein the wavelength of the pump light emitted from said first laser source is 1310-1480nm.

78. The optical fiber amplifier as claimed in claim 76 or 77, wherein said tellurite fiber is a dispersion compensating fiber.

79. The optical fiber amplifier as claimed in claim 76 or 77, further comprising a third laser source and a silica fiber pumped with the pump light emitted from said third laser source, wherein the signal light output of said second wavelength region is amplified in said silica fiber.

80. The optical fiber amplifier as claimed in claim 79, wherein the wavelength of the pump light emitted from said third laser source is 1380-1550nm.

81. The optical fiber amplifier as claimed in claim 79, wherein said tellurite fiber is a dispersion compensating fiber.

82. The optical fiber amplifier as claimed in claim 79, wherein said silica fiber is a dispersion compensating fiber.

83. An optical fiber amplifier comprising:

first to third laser sources;

a tellurite fiber pumped with the pump light emitted from said first laser source;

a Thulium-doped fiber pumped with the pump light emitted from said second laser source;

a silica fiber pumped with the pump light emitted from said third laser source;

wherein said tellurite fiber, Thulium-doped fiber

and silica fiber are connected in series in this order.

84. The optical fiber amplifier as claimed in claim 83, wherein the wavelength of the pump light emitted from said first laser source is 1310-1480nm and the wavelength of the pump light emitted from said third laser source is 1380-1550nm.

85. The optical fiber amplifier as claimed in claim 83 or 84, wherein said Thulium-doped fiber is a Thulium-doped fluoride fiber.

86. The optical fiber amplifier as claimed in claim 83 or 84, wherein said tellurite fiber is a dispersion compensating fiber.

87. The optical fiber amplifier as claimed in claim 83 or 84, wherein said silica fiber is a dispersion compensating fiber.

88. An optical fiber amplifier comprising:

a first laser source; and

an Erbium-doped tellurite fiber pumped with the pump light emitted from said first laser source;

wherein the wavelength of the pump light emitted from said first laser source is 1410-1440nm.

89. The optical fiber amplifier as claimed in claim 88,

wherein the concentration of Erbium doped in said Erbium-doped tellurite fiber is 1000ppm by weight or less.

90. The optical fiber amplifier as claimed in claim 88, further comprising a second laser source for pumping said Erbium-doped tellurite fiber, wherein the wavelength of the pump light emitted from said second laser source is 1450-1500nm.

91. The optical fiber amplifier as claimed in claim 90, wherein the concentration of Erbium doped in said Erbium-doped tellurite fiber is 1000ppm by weight or less.

92. The optical fiber amplifier as claimed in claim 90, further comprising a coupler that combines the pump light emitted from said first laser source and that from said second laser source.

93. An optical communication system including at least one transmission line segment comprising:

(a) a repeater incorporating first and second laser sources and a tellurite fiber pumped with the pump light emitted from said first laser source; and

(b) a unit transmission line having a silica fiber pumped with the pump light emitted from said second laser source.

94. The optical communication system as claimed in claim

93, wherein the difference in wavenumber between the pump light emitted from said second laser source and the pump light emitted from said first laser source is 42-166cm^{-1}.

95. The optical communication system as claimed in claim 93 or 94, wherein said tellurite fiber is a dispersion compensating fiber.

96. An optical communication system including at least one transmission line segment comprising:

(a) a repeater incorporating first to third and fifth to sixth laser sources, a first tellurite fiber pumped with the pump light emitted from said first and second laser sources, a first silica fiber pumped with the pump light emitted from said third laser source, and a second tellurite fiber pumped with the pump light emitted from said fifth and sixth laser sources; and

(b) a unit transmission line having a fourth laser source and a second silica fiber pumped with the pump light emitted from said fourth laser source;

wherein said first to fourth laser sources emit pump light beams of wavelengths different from one another.

97. The optical fiber amplifier as claimed in claim 96;

wherein the difference in wavenumber between the pump light emitted from said third laser source and that emitted from said first laser source is 42-166cm^{-1},

the difference in wavenumber between the pump light

emitted from said first laser source and that emitted from said second laser source is 125-290cm^{-1}, and

the difference in wavenumber between the pump light emitted from said first laser source and that emitted from said fourth laser source is 42-290cm^{-1}.

98. The optical fiber amplifier as claimed in claim 96; wherein the difference in wavenumber between the pump light emitted from said fourth laser source and that emitted from said first laser source is 42-166cm^{-1},

the difference in wavenumber between the pump light emitted from said first laser source and that emitted from said second laser source is 125-290cm^{-1}, and

the difference in wavenumber between the pump light emitted from said first laser source and that emitted from said third laser source is 42-290cm^{-1}.

99. The optical fiber amplifier as claimed in claim 97, wherein the pump light beams emitted from said first and fifth laser sources have the same wavelength and the pump light beams emitted from said second and sixth laser sources have the same wavelength.

100. The optical fiber amplifier as claimed in claim 98, wherein the pump light beams emitted from said first and fifth laser sources have the same wavelength and the pump light beams emitted from said second and sixth laser sources have the same wavelength.

101. The optical fiber amplifier as claimed in claim 97 or 98, further comprising a seventh laser source for pumping said second silica fiber, wherein the pump light beams emitted from said seventh and third laser sources have the same wavelength.

102. The optical fiber amplifier as claimed in one of claims 96-100, wherein said first tellurite fiber, first silica fiber and second tellurite fiber are connected in series in this order in said repeater.

103. An optical communication system including at least one transmission line segment comprising:

(a) a repeater incorporating first to third laser sources, a tellurite fiber pumped with the pump light emitted from said first and second laser sources, and a first silica fiber pumped with the pump light emitted from said third laser source; and

(b) a unit transmission line having a fourth laser source and a second silica fiber pumped with the pump light emitted from said fourth laser source;

wherein said first to fourth laser sources emit pump light beams of wavelengths different from one another.

104. The optical communication system as claimed in claim 103;

wherein the difference in wavenumber between the pump

light emitted from said third laser source and that emitted from said first laser source is 42-166cm^{-1},

the difference in wavenumber between the pump light emitted from said first laser source and that emitted from said second laser source is 125-290cm^{-1}, and

the difference in wavenumber between the pump light emitted from said first laser source and that emitted from said fourth laser source is 42-290cm^{-1}.

105. The optical communication system as claimed in claim 103;

wherein the difference in wavenumber between the pump light emitted from said fourth laser source and that emitted from said first laser source is 42-166cm^{-1},

the difference in wavenumber between the pump light emitted from said first laser source and that emitted from said second laser source is 125-290cm^{-1}, and

the difference in wavenumber between the pump light emitted from said first laser source and that emitted from said third laser source is 42-290cm^{-1}.

106. The optical communication system as claimed in claim 104 or 105, further comprising a fifth laser source for pumping said second silica fiber, wherein the pump light beams emitted from said fifth and third laser sources have the same wavelength.

107. The optical communication system as claimed in one

of claims 103-105, wherein said first tellurite fiber, first silica fiber and second tellurite fiber are connected in series in this order in said repeater.